MR3529-28
Application Serial No.: 10/045,055
Reply to Office Action dated 23 October 2006

AMENDMENTS TO THE CLAIMS

The following Listing of Claims will replace all prior versions and listings

of claims in the subject Patent Application.

Listing of Claims:

1. (Currently amended): A debugger for visual debugging of a declarative

language encapsulated constraint system comprising:

a collector operable to collect a plurality of generation events during

a test generation process, said collector further collecting from said test generation

process a plurality of generation entities, said generation entities including fields

representative of at least one data structure or variable[[,]] and constraints for

defining relationships between respective fields, wherein said generation events

correspond to generation decisions executed during said test generation process ~~to~~

~~apply~~ on said constraints ~~to~~ and said fields, said generation events each modifying

at least one of said generation entities; and

a graphical user interface operable to graphically represent and

concurrently display said collected generation entities, ~~and~~ corresponding ones of

said generation events, and indicia describing the respective modifications

resulting from said corresponding generation events upon said generation entities

collected responsive to said generation decisions.

2. (Previously presented): The debugger of claim 1, wherein said collected

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generation entities and corresponding ones of said collected generation events are

displayed on said graphical user interface in a two dimensional chart.

3. (Previously presented): The debugger of claim 2, wherein said

generation entities are displayed on a first dimension of said chart and a second

dimension represents said generation decisions in a linked sequence, said

generation events being displayed in alignment with their corresponding

generation entities.

4. (Previously presented): The debugger of claim 1, further comprising a

data browser for interactive selection of said generation entities to be viewed.

5. (Previously presented): The debugger of claim 1, further comprising a

step tree displaying a sequence of steps performed by said test generation process.

6. (Previously presented): The debugger of claim 1, further comprising an

event browser for displaying said generation events.

7. (Previously presented): The debugger of claim 1, further comprising an

order browser for displaying generation field order decisions.

8. (Currently amended): A method for visual debugging of a constraint system being encapsulated in a declarative language comprising:

concurrently displaying indicia indicative of relationships between a plurality of generation events collected during constraint resolution of the constraint system from a generator and a plurality of generation entities comprising fields representative of at least one data structure or variable[[,]] and constraints for defining relationships between respective fields, wherein said generation events each modify at least one of said generation entities, and an order of execution of said generation entities and indicia describing the respective modifications resulting from corresponding ones of said generation events upon said generation entities is are also graphically displayed; and

debugging the constraint system by determining responsive to said displayed relationships one of said generation events to identify therefrom a constraint that remaining unresolved for a corresponding one of said fields.

9. (Currently amended): The method of claim 8, further comprising viewing a plurality of generation events sequentially from a selected generation event.

10. (Currently amended): The method of claim 9, wherein said sequence is displayed forward from said selected generation event.

11. (Currently amended): The method of claim 9, wherein said sequence is displayed backward from said selected generation event.

12. (Currently amended): A method for displaying events of a generation process to a user for debugging the generation process comprising:

extracting a sequence of generation events from a constraint resolution procedure of the generation process wherein constraints define relationships between fields representative of at least one data structure or variable, said constraint resolution procedure determining an order in which said constraints are applied in the generation process, wherein said order in which said constraints are applied is determined from an order of said sequence of generation events, said generation events each modifying at least one of said fields or constraints; and

displaying at least a portion of said sequence of generation events to the user in a visual display concurrently with a representation of at least one generated field from at least one generation event and indicia describing the respective modifications resulting from corresponding ones of said generation events upon said field and constraint.

13. (Canceled).

14. (Currently amended): The method of claim 12, wherein said visual display includes a representation of at least one constraint from at least one generation event.

15. (Currently amended): The method of claim 12, wherein said visual display includes a representation of a relationship between at least one of said generation events and a generation entity.

16. (Original): The method of claim 12, wherein said visual display includes at least one type of information displayed as a result of a selection by the user.

17. (Currently amended): A debugger for visualizing a generation process comprising:

an analyzer analyzing resolution of constraints for defining relationships between respective fields representative of at least one data structure or variable, and said constraints a plurality of generation decisions being applied during the generation process to extract a sequence of generation events from the generation process, said generation events each modifying at least one of said fields or constraints, said constraint system being encapsulated in a declarative language, said sequence of events occurring in an order corresponding to an order

in which constraint resolution decisions were made in the generation process; and

a visual display operable to concurrently display information related to at least one field on which a constraint was applied, information related to ~~how~~ said constraint ~~was~~ applied, ~~and~~ information related to said order in which said constraint resolution decisions were made, and indicia describing the respective modifications resulting from corresponding ones of said generation events upon said field and constraint.

18. (Currently amended): The generation debugger of claim 17, wherein said visual display further displays information related to ~~an~~ a generation event collected during static analysis.

19. (Currently amended): The generation debugger of claim 17, wherein said visual display further displays information related to ~~an~~ a generation event collected during program execution.

20. (Original): The generation debugger of claim 17, wherein said information is represented with at least one icon and wherein said visual display further displays information when said icon is selected.

21. (Original): The generation debugger of claim 17, wherein said visual display further displays ordering information for a plurality of fields.

22. (Original): The generation debugger of claim 21, wherein said visual display further displays ordering information based on static analysis.

23. (Previously presented): The generation debugger of claim 21, wherein said visual display further displays ordering information based on order computed dynamically.

24. (Original): The generation debugger of claim 21, wherein said visual display further displays ordering information related to a group of fields selected through said visual display.